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Singapore as an Informational Hub in a Space of Global Flows

This article follows the case of one city – Singapore – that has deliberately fashioned itself as a regional, indeed global, hub for the information age. The city-state conceived of the island's development through a vocabulary of networks and hubs in a space of global flows. The Singapore government's efforts to embrace the new possibilities of being a global hub while coping with the ramifications of changing social and spatial relationships, at scales from the local to the global will be followed. The article focuses upon the initiative to create a so-called Intelligent Island and the SingaporeONE project to create a pervasive networked environment. These two linked initiatives were aimed at allowing Singaporeans to exploit digital technology, but, they also reconfigured the relationship of Singapore to the outside world.
The material and discursive consequences of these plans will be examined suggesting that the rhetorical and discursive effects are probably as significant as many of the alleged benefits attained through information processing. These initiatives are set in the context of a range of other flows of people and things to raise issues about the city state as a purposive actor shaping the environment and, at the same time, being pushed by forces that destabilise the links between of people and place upon which the state has relied.

City Worlds – World Cities

While many techno-utopians predicted the dispersal of key command and control activities and information workers, more sanguine commentators saw new opportunities for urban centres. Thus while Marshall McLuhan had predicted the emptying of Manhattan and a renewed bucolic idyll (Barley 2001:91), more sophisticated accounts also saw a changing configuration of urban space. In terms of the real-time global flows of information, the "constructed geographical space has been replaced by chronological topographies, where immaterial electronic broadcast emissions decompose and eradicate a sense of place, [where the] city lost form except as connector or membrane – two-dimensional flatland." (Boyer 1996:19) So, there may be a dispersal of functions but that :

"decentralization would take on an altogether different sense from that of autonomy accorded to regions, it would signal the end of the unity of place of the old political theater of the city, and its imminent replacement by a unity of time, a chronopolitics of intensivity and interactivity, 'technicity' succeeding the continuity [long duree] of the city, architecture of information systems definitively replacing the system of architecture and of contemporary urbanism." (Virilio 1998:61)

In this way, globalization reorders the entrenched hierarchies of first and third worlds and destabilizes our notions of what a city might be. In other words, real-time technologies mean that, increasingly, the parts of a city are not all moving to the same beat. Some parts will be hooked into the global flows, others moving to local rhythms and so on. This is a vision of decomposition, of recombinant cities that contrasts with "much of social science research [that] has operated with the assumption of the nation-state as container, representing a unified spatiotemporality," overlooking the multiple spaces, times and orders that exist where "[each] sphere, global and national, describes a spatiotemporal order with considerable internal differentiation and growing mutual imbrication with the other." (Sassen 2000b:215) This new geography has cities where contiguity in time does not match contiguity in space, where the informational flows between Manhattan and London may be greater than between Manhattan and Harlem. This is not the abolition of distance, but a new "geography of centrality" with redistribution of functions across and between parts of cities. "It is a geography that explodes conventional notions of context and traditional hierarchies of scale." (Sassen 2000b:225) It is an inter-urban geography of city fragments that could be seen joining up around the globe where "a relation of intercity proximity [is] operating without shared territory: Proximity is deterritorialized." (ibid: 226) Putting this together then, it means the relationships between cities are no longer necessarily mediated by higher scale categories (be that region or nation) and indeed may be between subcity level localities. So, instead of thinking of bounded containers, we need to study "translocalities" where the local is no longer opposed to the global but rather is the very ground of its articulation. (see Smith 1999:124–5)

Becoming a World City

World cities function as key actors in the global arena forming switching points amidst the expansive global networks of power and information. This renewed geography of centrality does not just happen and the

capability for global control cannot simply be subsumed under a structural position but must be produced. (cf. Sassen 1997:4)

Singapore's strategies to become a hub have been framed by issues ranging from the internal story of Singapore to the changing role of cities in global trade. Singapore is an example of the "criss-crossing transnational circuits of communication and cross-cutting local, translocal and transnational social practices that 'come together' in particular places at particular times and enter into the contested politics of place-making." (Smith 2001:7) Singapore had started as diasporic city, predominantly Chinese with Malay and Indian minorities, where multicultural contact and hybridisation were incipient from its foundation. However, its drive into a unifying collective identity might actually make it more fragile in the face of trends towards fragmentation.

The city's self-narrative is one of resourcefulness in taking a state of three million citizens, on an island barely thirty miles long with no natural resources, and making it one of the most prosperous states in the region and one of the most dynamic economies in the world. This story of development through its people's efforts and talents is one of the political narratives of the People's Action Party, which has ruled the island for forty years, and is especially associated with the vision of its long serving leader Lee Kuan Yew. The governing party tries to articulate a sense of collective endeavour for the island, its people and its economy. However, the development into a global hub has posed challenges to this story. The 1960s and 1970s were characterized by the pioneering adoption of an export processing model of development – building a manufacturing industry, specialising in electronics, out of almost nothing. Singapore relied upon low wages, secured in part by strong government ties with organised labour, and a social contract that deferred the rewards of industrialisation, while building a strong social infrastructure with subsidised housing. In the 1980s, increasing competition from regional neighbours with lower cost structures began to outline the limits to this strategy for Singapore. It therefore sought ways of moving into more added-value areas of the economy, notably, pushing hard in terms of financial services.

Singapore responded to shifts in the global economy, such as the liberalization of financial markets, by aiming to become a key hub in the emerging twenty-four hour markets. Alongside flows of money and information came flows of people. It encouraged expatriate workers to work there, providing quality infrastructure for global financial institutions, a stable political environment and so on. Instead of selling local labour, the island was looking to both recruit globally or at least be a base where global corporations would feel able to send employees, and act as a hub in world capital markets. Singapore moved from being nationally orchestrated to being imbricated in international and global labour and capital flows as well as those of goods. By the 1990s, the intellectual current of globalised thinking saw a "world without borders" or "weightless economies" and "friction free capitalism". The government of Singapore explicitly engaged these ideas in its policies and the Prime Minister, Goh Chok Tong, announced the need for new strategies for the "next lap" of development.

These trends brought together three inter- related elements: First, the ideological and political will to remove obstacles to the free circulation of goods and capital. Second, the trend of increasing informationalisation of the economy saw information sectors as increasing both in scale and value (Kumar 1993; Webster 1995). Third, the global reach of new information and communication technologies brought the first two elements together – allowing a global trade in information-qua-commodity. Singapore as a world city is a unified agent competing globally for investment and locational functions from transnational enterprises. Recent studies of labour markets in Singapore indicate that firms choose who to send there to develop human capital through professional networks and relationships – developed in face-to-face contacts in business and social settings (Beaverstock 2002). Singapore actively recruits what it calls "Top Foreign Talent" with adverts placed in, for instance, British University graduate magazines. In 2002, these promoted Singapore as a "globally connected and friendly city" which offers a "stimulating environment that appreciates and nurtures human potential" with an agency, Contact Singapore, that provides a forum for "entrepreneurs and professionals to meet and exchange ideas and information and collaborate in value-creating relationships." In other words, the hub function for Singapore as a world city is as much about being a living, working city as about distantiated flows of information. Hence, the mediated flows and the hand-picked personnel produce a double pattern of centrality. Yeoh and Chang suggest the state portrays "a space of flows, [and their] vision for Singapore involves criss-crossing circulatory streams of people moving in multiple directions" (2001:1029) with both expatriates coming in and Singaporeans going out from a cosmopolitan city where, according to the Prime Minister, "people from many lands can feel at home." Perhaps not so surprising with a total foreign population of 700,000 (out of 3.9 million). In the words of the culture minister, Singapore needs "a culture that is outwardly orientated. What we need is a Singapore mentality that is global and cosmopolitan [...]. If Singapore is reserved for Singaporeans alone, we would have a very small Singapore." (Yeoh and Chang 2001: 1031) That these programmatic statements are needed reflects the fact that 23% of the population opposed the preferential visa rules for "Top Foreign Talent" (op. cit.: 1032). These flows also happen at other levels too, as Hannerz (1990) notes with globalised business personnel, creative and media professionals moving alongside more fleeting tourist flows and the less publicised, and often hidden, flows of lowpaid migrants from poor countries to service the elite.

Many commentators suggest that the effect of becoming a world city can be social polarisation – in a sense of rich and poor, but also of local and global elements of society. These divisions tend to be refracted through race and origin – with poor immigrant labour from poor countries, but also a gendered domestic economy (Kofman 1998). In Singapore, this division is strongly marked in many forms. First, the differential visas for top talent and unskilled immigrant labour define, for instance, family access rights, and encode Singapore's policy of "disposability" – with cheap immigrant labour being repatriated at times of economic down-turn. Second, in Singapore, as in Hong Kong (Law 2001; 2002), the gendering of work produces an ongoing set of uneasy debates about the incorporation of female, especially Filipina, domestic labour into the economy. As Singaporean women take on more and more highly paid economically active roles, the burden of domestic work is being transferred – with perennial stories about the mistreatment of maids and social panics about their "disorderly" presence. Third, spatially there is a pattern of segregation from suburban state developed housing and the private market which, though muted for Singaporean nationals, finds clear expression in the residential concentration of expatriate workers around areas like Holland Village (Chang 1995).

Development of Information Infrastructure for a Global Hub

Singapore's government has long pursued an active agenda with regard to information and communication technologies. It sees itself, and wishes to be seen as, an innovator that is up with the latest technologies and thinking. By stressing the self-image, I do not mean to imply that they are not innovative – on the contrary, the government has been bold and often far-sighted, but I want to point out that the state has become aware not only of the value of new technologies but also of the value of appearing innovative. There have been three strategic plans in Singapore with regard to IT. The first goes back to 1982 and worked through the computerisation of government functions. The second was launched in 1986 and responded to what was seen as a lack of indigenous labour skilled in IT – and thus marks a significant attempt to move into areas of higher valueadded work as opposed to the approach of attracting electronics assembly factories with low wages. The government has followed this plan with continued efforts to increase the number of programmers, designers and system managers that Singapore produces (Corey 1993; Corey 1997; Corey 1998). The third and most recently completed plan, upon which this article focuses, was billed under the headings of "IT2000" and the vision for an "Intelligent Island". There is now a rolling "Infocomm Development Roadmap" which in part reflects the recognition that grew during the IT2000 process that rapidly evolving, ICTs are not entirely amenable to top-down, long-term planning. The first thing to note then is that Singapore's path has been government steered and policy driven, and not left to market forces. The balance is shifting though, with the launch of initiatives for a "Connected Singapore" this last spring which, according to the Infocomms Development Authority (hereafter IDA, the state regulator and developer), "aims to bring Singapore's infocomm development to new heights, including more pervasive connectivity among the people and businesses through infocomm technology, and revitalizing the infocomm industry." And in the words of the Minister for IT, Media and the Arts, it means Singapore

"must go beyond a government-driven process, to a new industry-government partnership. Industry investment and enterprise must be the new driver, with the government providing support to bring clear and sustainable benefits to industry. We must encourage big businesses and smaller start-ups to work closely together, to deliver value to customers, and to build strong niches for local industry. And we must go beyond our shores, to the region and beyond, to grow markets, build our companies, and ultimately, create good, challenging and meaningful jobs for the ICT industry in Singapore." (IDA Launch statement)

The planning goes beyond Singapore – since it presents only a small market in itself – and there is also a changing role for the government with the encouragement of small start-ups and partnership arrangements rather than state-led development. We can see how this new phase has emerged from the experience gained over the last ten years with the attempt to build an Intelligent Island. This had self-consciously mobilised the tradition of the developmental and activist state that lies behind the narratives of Singapore's economic development: "It took visionary thinking, high-risk daring, meticulous planning and relentless application. These same characteristics are now at play in envisioning and building Singapore as an intelligent island." (Arun and Yap 2000:1750) According to the National Computer Board (hereafter NCB, the forerunner to the IDA) the IT2000 plan aimed at "transforming Singapore into an Intelligent Island, where the use of information technology is pervasive in every aspect of society" and through this to make Singapore a "global centre for science and technology, a high value location for production and a critical node in global networks of commerce, communications and information" (NCB 1997). The five main goals were, first, to "develop Singapore into a global hub" and thus boost economic growth, then to enhance individual potential, link communities locally and globally, and, finally, improve the quality of life. The NCB explicitly invoked the notion of the hub as entrepôt centre, mobilizing the standard discourse that with few resources Singapore could become a "highly efficient switching centre for goods, services, capital, information and people," (NCB 1997) where knowledge and information intensive services would be supplied from Singapore around the globe. I want to focus on one major aspect of this plan in some detail. The objective remains in the current "Connected Singapore" campaign which has as its second strategy the aim "to develop Singapore as a

leading digital distribution and trading center to […] extend Singapore's hub status in the digital medium." (IDA 2003)

SingaporeONE

One strand of IT2000 focused on making ICTs pervasive and integrating applications. Singapore pioneered the application of electronic road pricing in the central business district – with charges automatically deducted from smart cards, and cars logged for size and time for differential charges (Wong 1996) and in providing GPS in taxis to increase the efficiency of their circulation. Now it sought to join up specialist networks such as "tech net", and shipping document networks and electronic court networks, that had all been previously developed, were now to be linked together. More impressive still, the pervasive aim meant the state intended that everyone should be included. It aimed for this for three reasons. First, politically, the state has an inclusive ideology and saw a digital divide as socially dangerous and potentially politically damaging. Second, in order to gain economies of scale, the state needed wide-scale adoption. If, for instance, it was to be worthwhile developing electronic tax returns, then it needed widespread use, with the eventual aim of replacing paper returns and thus reducing costs of duplicating these processes. Third, and the least acknowledged, there was an issue of control and containment, in that everyone would use the approved network. Thus the state did not want even one "idiot" high-rise block to remain unwired, and, given its control of public housing, it set to ensuring that every household would be within the last eight feet of broadband access.

To reflect these objectives, the integrating project was thus named SingaporeONE – One Network for Everyone. This has been heralded as "perhaps the single most important application of cutting edge IT for the general population," providing high capacity links for "everyone, everywhere." (Arun and Yap 2000:1755) It led commentators to claim that "Singapore is now on its way to becoming an Intelligent Island" with a National Information Infrastructure offering a pervasive network reaching 99% of the population. It would bring together the, then mid-1990s, 40% of households who had PCs, with e-tax returns anticipated to start at 50,000 per annum but actually producing 160,000 in 1998 due to government incentives, and all leading, it was hoped, to becoming an e-commerce hub with a "high trust environment" in terms of legal systems, politics and technical reliability. (Mahizhanan 1999:15–17) The predictions were for 100,000 users of SingaporeONE by the end of 1999 and 400,000 by the end of 2001. (op cit.:18)

However, the development was not entirely successful. It is clear from this quick account that the initiative was a classic state led infrastructure project – costing an estimated S$150 million. And the underlying philosophy was very much "build it and they will come." The planners believed that there was a vicious circle whereby high-level applications had not been used since the network could not carry them, therefore there was no demand and thus no development, and thus nothing to use. The NCB felt the best place to break the circle was with infrastructure to change the network. SingaporeONE thus offered an internal high bandwidth system both to domestic premises but also a very large capacity on main commercial networks, while the government also worked to create a "big pipe" connection to the USA. Initially, the government also planned a range of applications, so that by the launch they could claim more than 200. However, most users looking at the interface would not have seen these – they were support applications rather than end-user software. In terms of an information superhighway, the system did not offer the average user much of a destination. In fact, recent Cyberatlas figures suggest only 53,000 households and 135,000 users had adopted broadband access by October 2001 (rising to 70,000 and 172,000 respectively by March 2002) (Cyberatlas of June 27, 2002) rather than the anticipated 400,000. IDA survey figures from 2002 suggest that by then 40 % of the population was using broadband access but 18% of users accessed facilities from educational establishments, 49% from work, 12% from public venues (such as cybercafes) and 46% used home access – clearly people might use multiple access points. Technically, some 40% used ADSL access which was what most of SingaporeONE provided to domestic sites (IDA Survey on Broadband and Wireless Usage in Singapore 2002). Alongside the wiring of the island, the state enabled a private company to establish "e-kiosks" all around the city – including many on Orchard Road which is some of the most expensive commercial real estate in Asia. It set out training events such as "Surf@stadium" which took 5000 students in a week, and sent out training buses to assembly factories for shift workers to visit. But increasingly it has had to backpedal on its claims both for the numbers who would use SingaporeONE and the role it would play.In part, this was about the lack of visible applications or drivers for uptake but what had also happened was that the project was overtaken by events. Thus in 1994 when it was launched, we have to recall that the Mosaic browser had only just been invented and the explosion of the web was hardly foreseen by anyone. But in Singapore by January 1997 there were 139,000 dial-up Internet subscribers, more than a quarter of a million six months later and half a million by the end of 1999 when SingaporeONE began to roll out. Estimates from the Internet Data Corporation suggest 1.5 million users by 2001. The IDA "Annual Survey on Infocomm Usage in Households and by Individuals" (2002) suggests this is now 636,000 households for all types of access that is 59.4% of the total while 24% of homes now have broadband of varying sorts. The Nielsen net use rating for 2002 suggests 950,000 active net users while the CIA factbook suggests 2.31 million have ready access.

All of this is respectable for SingaporeONE and indeed it may have helped break the cycle of low bandwidth and use. However, it has hardly become the pervasive media it was once billed as being. Web access has rather bypassed the system. Certainly, it has pushed the issue of control where the state had envisaged SingaporeONE being an instrument to control the new media – thus a sense of One Network being the Only Network. The pseudonymous writer Thomas2Less suggested the rationale of wiring everyone was to create a "virtual condom" around Singapore, and thus a "government sponsored 'no-place' of a global hub." (Thomas2Less 1999)

This echoes Singapore's strategy with other media, for instance, being a major uplink centre for satellite transmission but outlawing satellite reception by the public, offering Singaporeans regulated cable TV instead. Singapore's government has strong border controls in terms of information flows. It policed print publications with a mixture of censorship, tied ownership and the active use of libel laws and at various times restricted publications ranging from Cosmopolitan (too racy) to the Far Eastern Economic Review (too critical). Thus, one of the issues for Singapore was how to be a hub for the unfettered flow of global information while retaining its tight control over popular expression and the media (Rodan 1998). In the late n1990s, Singapore's regulator at the time infamously swept thousands of email accounts "for viruses." It later apologised but by then it had reminded users that they could have their mail read. It also retains censorship rules over the Web – with a cache system of banned sites. This is instead of the ideology often announced of "uncontrollable" information on the Web. Singapore's government persists with controls. However, they are not so foolish as to imagine they can successfully censor all content they deem undesirable – rather the censorship acts as a line in the sand. They are clear they do not have the time, staff or inclination to monitor all data flows. However, they retain the right and this implicit threat works to push self-censorship. In terms of being a data hub, the government responded to commercial anxiety about having valuable information going through a cache by allowing commercial users to bypass the system – in fact, anyone can for the price of a phone call to a service provider in Malaysia. As Sassen notes, then "digital space, whether private or public, is embedded in actual social structures and power dynamics, its topography weaves in and out of non-electronic space" (Sassen 2000a:18) and is more than just the Internet but also its interaction with a range of different networks. In other words, the notion of the bounded city does seem to fall apart here, and Singapore stands on the paradoxical cusp of working to preserve a hard won unity and carefully controlled social cohesion while embracing flows of information.

Conclusion: Information and Creating a Hub

Singapore certainly has aimed to become a global hub at a number of levels – not least in the arena of informational economies. I have tried to illustrate how this positioning as a hub has been through deliberate policies extending over a considerable period. It is manifest in thinking of the city as composed of movement and competing flows. However, I have also tried to sketch out how the Singaporean government is not merely aware of the processes but also very much a conscious and reflexive player. Thus, it clearly sees a necessity in becoming a "hub," believing that there can be only one major regional hub – and if it is not Singapore then Malaysia's Multimedia Super Corridor and Cyberjaya are just up the road. And further away, Hong Kong has built a science park project called a "teleport" aiming to be the regional base for multinational information intensive industries. Thus, Singapore takes pride in and utilises a range of indicators to persuade global players of its hub status, such as coming second only to the USA in the 1999 Information Society Index of development, or fourth globally for broadband access (ahead of every European country in 2001) and sees itself competing in this global arena with both other countries and cities. It can claim to be the only country 99% wired (using its small size to advantage) or compare itself to other digital urban hotspots as a centre in order to attract innovation – Wired magazine (July 2000) lists it as one of the world's 46 "venture capitals". However, the way the plan had to be altered in the light of changing developments suggests some limits to this centralised infrastructure model. The importance of SingaporeONE and its success is not just to be measured through the mixed indicators on uptake. In those terms, the verdict is patchy with its intended use being transformed and some of its attempts at pervasive presence, such as kiosks, being allowed to drop. However, it has clearly established Singapore's commitment to an efficient and comprehensive information infrastructure. Putting it perhaps too baldly, we might ask whether the same expenditure in other fields could have garnered such good global PR for the city. In that sense, the initiative is not just about being a hub for flows of information but being seen as one. In an environment of interurban competition, it is perhaps this latter dimension that has been the most important contribution of SingaporeONE.

However, for Singapore translocalities and the criss-crossing transnational circuits of communication entail more than just an outward orientation of more sectors of the economy but also a decomposition of what is often thought of as the unifying space of the state. As Yeoh and Chang (2001) note, the drive to unify one people in and through one place was a response to Singapore's roots in linguistic diversity and diasporas. The homogenising effect of the national project has been parodied by the architect Rem Koolhaas who quipped "Singapore seems a melting pot that produces blandness and sterility from the most promising ingredients." (Koolhaas and Mau 1995:1026) More seriously, its commitment to inclusive development,

marked by the 85% state subsidized housing, is very much part of the social compact that traded cultural heterogeneity and individualism for growth and social inclusion at the price of a tightly controlled society. The national model that clearly embraced change and innovation, but was also founded on the ideas of a coherent unified identity, now seems under threat.

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